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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/854,759	05/14/2001	Michael B. Ball	4589US (99-1151)	8899

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TRASK BRITT  
P.O. BOX 2550  
SALT LAKE CITY, UT 84110

EXAMINER

HARAN, JOHN T

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 04/01/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/854,759		BALL ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	John T. Haran		1733	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 February 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-75 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-75 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 February 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. This office action is in response to the amendment filed on 2/21/03. The rejection of the claims under 35 USC 103(a) as being obvious over Grigg et al (US 2002/0068453) has been withdrawn in light of Applicant's assertion of common ownership of both Grigg et al and the present application at the time the invention was made.

### ***Response to Amendment***

2. It is noted that the preliminary amendment and substitute specification filed on 9/28/01 have been entered.

### ***Drawings***

3. The corrected or substitute drawings were received on 2/21/03. These drawings are approved.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6, 10-17, 21-27, 31-37, 41-49, 51-55, 57-64, and 66-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh (U.S. Patent 6,338,980) in view of Bennett et al (U.S. Patent 6,478,918).

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Satoh discloses a method for manufacturing chip-scale packages and IC chips wherein a wafer is provided with bumps (projecting electrodes) on an active surface of the wafer, the adhering face of an adhesive member, such as a tape, is applied to the active face of the wafer thereby covering and protecting the bumps and the other face is attached to a table (wafer mount) by vacuum attraction (suction), and then the inactive face of the wafer is thinned through grinding (See abstract; Column 3, lines 27-50; and Column 6, lines 10-17). Also as illustrated in Figure 1C the adhesive face of the adhesive member conforms to the shape of the bumps and the nonadhesive face (backing) is a substantially planar surface. Satoh is silent towards the adhesive member having a backing.

Satoh discloses the adhesive member can have one adhesive face or two adhesive faces and can be a tape or a resin or rubber plate with an adhesive face (Column 10, lines 10-16). One skilled in the art would have readily realized that numerous possibilities exist for obtaining an adhesive member with one adhesive face and one nonadhesive face such as a nonadhesive film, resin plate, or rubber plate, that is rendered adhesive on one face while leaving the other face nonadhesive through heating or an adhesive film that is adhesive on both sides and is provided with a cover film or backing layer on one side to provide a nonadhesive side or providing a nonadhesive film with an adhesive coating on one side, all of which are well known and conventional methods for obtaining an adhesive member with one adhesive face and one nonadhesive face. One skilled in the art would have readily appreciated that they are all alternate expedients that are all obvious one over the other. Furthermore, it is

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notoriously well known and conventional that adhesive tapes have a backing, as shown for example in Bennett et al. Bennett et al is cited as an example of a conventional adhesive tape with a backing used in wafer grinding (See abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an adhesive tape that has a backing, as is notoriously well known and conventional in the method of Satoh.

Regarding claim 12, one skilled in the art would have readily appreciated that it is well known and conventional when providing a backing to an adhesive member that either the adhesive is applied to an object first and then the backing is applied or the adhesive is applied to the backing and then the adhesive is applied to an object. The two are alternative expedients and are obvious one over the other. It would have been obvious to one of ordinary skill in the art to provide the adhesive to the active surface of the wafer and then apply the backing in the method of Satoh.

Regarding claims 11, 22, 32, and 42, while Satoh teaches thinning through grinding, it is also well known and conventional to thin through chemical-mechanical polishing. It would have been obvious to thin the wafer using the well known and conventional technique of chemical-mechanical polishing in the method of Satoh, as modified above.

6. Claims 7-9, 18-20, 28-30, 38-40, 50, 56, 65, and 74-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh (U.S. Patent 6,338,980) in view of

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Bennett et al (U.S. Patent 6,478,918) as applied above, and further in view of the admitted prior art.

Satoh is silent towards the thickness of the wafer pre and post thinning, but does teach thinning the wafer 100 micrometers (about 4 mil) as an example (Column 8, lines 12-13).

The admitted prior art teaches that a wafer must be at least 12 mils thick to undergo the bumping process without damaging the wafer (Specification, page 3, paragraph 5).

One skilled in the art would have readily appreciated performing the bumping process to the wafer at the lowest permissible wafer thickness to minimize the amount of wafer material that needs to be thinned and thinning the wafer to the ultimate desired thickness. The ultimate thickness of the wafer is within the purview of one skilled in the art and as taught in both the admitted prior art and Satoh it is desired to minimize the size of the wafer thickness. It would have been obvious to one of ordinary skill in the art at the time the invention was made to bump the wafer surface when it has a thickness of at least 12 mil and to thin it to at least 6 mils in the method of Satoh, as modified above.

### ***Response to Arguments***

7. Applicant's arguments filed on 2/21/03 have been fully considered but they are not persuasive.

Applicant argues that the claims are distinguishable from Satoh because Satoh is directed to placing an adhesive tape over the entire surface of a wafer rather than to

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**only** a portion of the wafer surface. First it is noted that the claim language is "a portion of said surface of said wafer" and not - - **only** a portion - -. As presently worded, the claims still read on placing an adhesive tape over the entire surface of the wafer because the entire surface encompasses "a portion". It is noted that it does not appear that the specification provides support for applying an adhesive tape **only** to a portion of a surface and that claiming such would be new matter.

It also appears that Applicant disagrees with the assertion that it is notoriously well known and conventional for adhesive tapes to have a backing and accordingly Bennett et al has been added to the rejection of the claims over Satoh as exemplary evidence of the assertion.

Regarding 12, one skilled in the art would have readily appreciated that it is well known and conventional when providing a backing to an adhesive member that either the adhesive is applied to an object first and then the backing is applied or the adhesive is applied to the backing and then the adhesive is applied to an object. The two are alternative expedients and are obvious one over the other. This reasoning does not rely on impermissible use of hindsight or impermissible use of knowledge available in the prior art.

### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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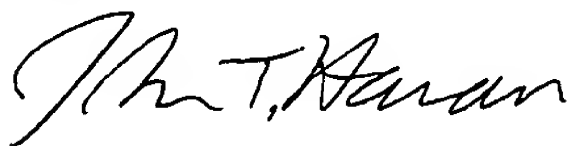
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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John T. Haran** whose telephone number is (703) 305-0052. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael W. Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



John T. Haran

March 25, 2003

  
Michael W. Ball  
Supervisory Patent Examiner  
Technology Center 1700